

Greater Efficiency or Predation: The CSX-ACBL Merger

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ABSTRACT

In June 1983 the CSX Corporation offered to buy Texas Gas Resources. Texas Gas was the parent company of American Commercial Barge Line (ACBL), the nation's largest barge line. If the merger proceeds to fruition, CSX will control two major railroads, Chessie and Seaboard; a major barge line; and a trucking company. Because this multimodal ownership includes both barge and rail, the acquisition raised legal questions concerning the Panama Canal Act specifically and competition generally.

Merger policy, as part of broad economic policy, should aim to maximize society's net economic surplus. In short, that means producing at lowest cost the goods and services a society demands. Actions that contribute to achieving that goal are worthwhile; those that do not are not.

Competition is frequently used as an index of whether net economic surplus is increasing or decreasing. The reason competition is an index is that under perfect competition, firms are forced to produce at lowest cost and also to price their goods at that cost. It can be argued that (a) if mergers do not harm competition or if they improve it, they should not be discouraged or (b) if mergers harm competition they must at least produce efficiency gains that lower costs enough to offset the harm done to competition. If both are true (i.e., no harm plus efficiency gains) then there will be compelling motives (from a sound public policy viewpoint) to approve a merger.

Merger opponents contend that the merger of CSX Gas Corporation and Texas Gas Resources would be predation and would lead to the demise of independent barge lines. They assert that the independents are responsible for maintaining competition in transportation and that without the independents the railroads will be able to greatly raise rates and reap monopoly profits. This, they claim, will lead to the type of rate abuses that brought Congress to pass the Panama Canal Act in the first place.

Consider one notion of how the railroads will conduct a predatory pricing campaign. John Donnelly, president of Ingram Barge Co., presented this example in The Journal of Commerce (June 27, 1983):

Take a normal intermodal move which works out to \$5 per ton for the rail portion and \$3 per ton for the barge portion. With an in-house barge line the rates could change to \$7 per ton for rail, and \$1 per ton for barge. The transportation company would make the same amount of money, but other barge lines trying to compete with the \$1 rate would go broke.

If the firm is a profit maximizer, it is already making as much as it can in each market it serves. It cannot, as the Donnelly example asserts, suddenly offset losses in one market with higher prices in some other market. In the Donnelly example the railroad should already be charging \$7 for the rail movement. A firm could try to finance below cost

service in one market from profits in other markets, but not from increased profits in those other markets.

Robert Bork points this principle out in his work on antitrust (1, pp. 144-145):

An equally foolish theory holds that predation is possible for a multi-market or conglomerate firm because it can lower prices to uneconomic levels in one market and avoid the costs of predation by raising its prices elsewhere. This theory rests upon the often-exploded recoupment fallacy. The predator would already be maximizing profits in all markets and so would have no way of increasing profits elsewhere to finance predation. That statement holds, of course, whether or not the predator has a monopoly in the other markets.

Consider the two stages of a predatory pricing campaign: (a) the price war itself and (b) the "postwar" attempt to reap monopoly profits. Not only can the price war itself be expensive for the predator, but the extremely low probability of permanent victory further discourages his undertaking the campaign. Consider first the costs and then the impermanence.

The costs for the predator during price wars are of three types: first, he must set prices below cost; second, he must extend these below-cost rates to a larger market share than he had when he started; and third, his above-cost revenue--if he ever achieves it--is in the future and must be discounted to present worth (1, pp. 153-154).

If a firm is pricing below cost in order to drive its competition into bankruptcy, that is predation. If a firm is covering costs and can provide service at lower cost, that is not predation. The latter should be encouraged because it represents increased efficiency.

As to the second cost factor, expanding operations, Bork can again be cited (1, p. 149):

Losses during a price war will be proportionately higher for the predator because he faces the necessity of expanding his output at even higher costs, while the victim not only will not expand output but has the option of reducing it and so decreasing his costs.

Hence as the would-be predator expands his market share, his losses grow.

One should add that the assets and financial strength of the competing carriers in the barge industry can be substantial. The nation's largest steel, grain, chemical, and petroleum companies own or operate a significant portion of the competing inland waterway carriers. Table 1 gives some illustrations of this. Given the financial strength of some of these barge company parents, chances of successful predation appear to be slim.

Consider conditions following a price war. The issues are ease of entry and exit for competing firms, and ultimately these can be reduced to entry alone. For a firm to enjoy monopoly profits, firms driven out plus other would-be firms must be excluded from entering and capturing these monopoly profits. Impediments to entry typically include government, unique production factors, high costs, and conditions relating to exit. None is significant in the barge industry (3, pp. 270-276).

Government procedures and regulations provide minimal barriers to entry of new firms in the waterway industry. Also the Interstate Commerce Commission (ICC) requires barge operators to file tariffs and seek approval of general rate increases only for non-bulk commodities such as newsprint and scrap iron. This traffic amounts to less than 10 percent of waterway tonnage.

Another entry barrier is presented when a firm has a unique production factor such as the tracks of a railroad, but no unique production factor like an exclusive right-of-way is required to operate a barge company. The right-of-way is provided by the federal government substantially below cost to all comers.

Capital is not a significant barrier in the barge industry either. New towboats range in price from about \$500,000 for a 500-horsepower boat to more than \$6 million for a 10,000-horsepower towboat. New barges range in price from about \$250,000 for a standard, open hopper barge (195 x 35 ft) to about \$2.5 million for a jumbo, refrigerated cylindrical tank barge. This equipment, moreover, is generally long lived and used equipment is available at prices that are far below original purchase prices.

The link between exit and entry is an important one. If it is difficult because of high or unusual costs to leave an industry, knowledgeable firms are unlikely to enter. Lengthy and complicated abandonment procedures, conditions that have long plagued the railroads, are an example. Such requirements to continue providing unprofitable service, however, do not apply to water carriers.

Liquidity of assets, also important to entry and exit decisions, is not relevant here. Notably, the barges' most unique, most valuable, and least trans-

ferable asset is the right-of-way. If traffic goes elsewhere, the waterways--in theory--cannot be moved to follow the market. Barge companies do not own such rights-of-way. Thus they cannot be caught holding high-cost, suddenly low-value assets.

For other barge assets, there is a resale market. Although it is true that prices for used equipment are presently depressed, due to reduced economic activity and the late 1970s' overinvestment in barge capacity, inherent demand for these assets will remain.

Thus none of the typical entry barriers would appear to prevent firms from immediately entering the waterway industry if a rail firm were foolish enough to wage a price war and try reaping monopoly profits.

It can be concluded that predatory pricing is a risky tactic for the predator. Economic studies of alleged cases of predation strongly suggest that predatory pricing is unlikely to occur (4).

POSSIBILITY OF EFFICIENCY GAINS

The basic savings from the CSX-ACBL merger come under the category of reduction of transaction costs. Transaction costs are the expenses a firm or individual incurs when they use markets to make exchanges. Transaction costs include several kinds of expenses: negotiating expenses involved in completing the exchange, costs of traveling to and from the marketplace, time consumed using the market (for example time spent to price shop), and expenses of communicating work or quality specifications. Ronald Coase in a seminal article pointed out that firms grow vertically, up and down the production and distribution chain, to save transaction costs: the costs of using the market to buy production inputs and services (5).

Many transaction costs saved by this merger involve the expenses of communicating work or quality specifications. Leon Moses described another kind of transaction costs this merger is designed to eliminate. These revolve around the uncertainty of equipment availability and equipment quality for intermodal movements by separate entities (6).

The problems and the attendant limitations on achieving intermodal efficiencies without joint ownership were made evident in Ben Allen's study of the Milwaukee Road-Alter Barge Company joint tariff in the late 70s (7). The tariff permitted independent grain elevators off river in Iowa to ship grain to the Gulf using a rail-barge movement. Milwaukee gathered the shipments and brought them to the river for Alter to take down to the Gulf. Although many efficiencies in equipment use were realized under

TABLE 1 Illustrations of Major Corporations with Barge Transport Operations (2, p. 19)

Barge Line	No. of Barges	Owner (Parent)	Parent's 1982 Sales Revenue (\$)
ORCO	1,805	Eastern Gas & Fuel Associates	1,325,621,000
Valley	855	Chromally American	1,177,253,000
Ohio Barge Line/Warrior & Gulf	825	U.S. Steel Corporation	18,375,000,000
Dravo Mechling	658	Dravo Corporation	1,151,617,000
Federal	625	Houston Natural Gas Corporation	3,180,718,000
Artco	566	Archer Daniels Midland	3,712,977,000
American Electric Power	511	American Electric Power	4,179,955,000
Conti Carriers	426	Continental Grain	15,000,000,000 ^a
ConAgra	325	ConAgra	1,709,599,000
Cargo Carriers, Inc.	317	Cargill	28,000,000,000 ^a
TPC Transportation	302	Pillsbury	3,385,100,000
Exxon	151	Exxon Corporation	97,172,523,000
Dow Chemical	111	Dow Chemical Corporation	10,618,000,000

^a 1981 estimate by *Fortune*.

the Milwaukee-Alter tariff, the tariff could not eliminate coordination problems.

There are three basic types of rail-barge movements, the second of which was attempted under the joint Milwaukee-Alter tariff. First and most common, the rail and barge portions of the movement are handled separately with the shipper responsible for coordinating the rail and barge transshipment, paying separate tariffs, and absorbing the car hire charges or demurrage. The second type is a joint tariff like the Milwaukee-Alter tariff. The third type would be rail-barge movements handled by one intermodal company.

In a rail-barge move paying separate tariffs, if the loaded railcars reach the river terminal and no barges are waiting for loads, the shipper pays demurrage for the cars. If the barge waits at the terminal because there are not enough loaded cars, the shipper pays demurrage for the barge. Under the Milwaukee-Alter tariff, the Milwaukee was supposed to drop off 15 loaded cars, enough to fill a barge, at the river but frequently only five or ten cars reached the river and did not fill the waiting barge; coordination clearly was a problem. The barge company absorbed the demurrage instead of the shipper; nonetheless that either party has to pay underscores the coordination problem.

It is quite possible that placing the whole movement and its costs (including delay costs) within one company would have made equipment coordination much easier. Similarly, having the movement under one corporate entity avoids splitting the underlying incentive structure. It is possible to show mathematically that whether or not joint entity equipment coordination problems are difficult (as in the Milwaukee Road-Alter Barge case), the divided incentive structure exacerbates inefficiency because of the separate pricing decisions. A single-entity operation eliminates this inefficiency.

PRICING PROBLEM

William J. Baumol (8) shows that when joint rail-barge rates are set by a consolidated entity these rates usually are lower and the output is greater than when rates are set by two separate entities. Transportation evidences important characteristics that produce this result. Suppose a movement from Point A to Point C requires two carriers and an interchange at Point B. The demand for the movement has two components: demand for transportation from A to B and demand for transportation from B to C. For transportation from A to C, the demand for each component must be equal.

Because transportation from A to C is made up of two equal components, demand for either component individually is less price sensitive or elastic than for the service as a whole. If the carrier on the A-B leg alone raises its rates 10 percent, total freight will fall less than if both carriers simultaneously raised their rates 10 percent. Assuming that scale economies are not significant over the relevant portion of demand and that coordination is

weak between the two carriers, each carrier has an incentive to increase its own rates and profits from the joint profit maximizing level of rates.

A numerical example will help illustrate this phenomenon. This example is given in Table 2. Suppose the current charge for a journey from A to C is \$20 per ton, and this is divided equally between two carriers, X and Y. Total traffic is initially 10 million tons. Suppose further that demand is such that a 1 percent increase in the total rate will reduce demand 3 percent, and that total cost for the movement is \$70 million for each carrier for 10 million tons or \$140 million total. Costs for 8.5 million tons and 7 million tons are \$59.5 million and \$49 million, respectively (i.e., the relationship is linear).

A comparison of lines 1 and 2 in Table 2 reveals that the carriers each lose \$2 million in profits if they both raise their rates 10 percent. Consider lines 3 and 4. If one carrier can raise its rates without a corresponding increase from the other carrier, the carrier that raises its rates can increase its profits by \$4 million. Note that the total profit on the move is less in this case than if each carrier charged \$10 per ton; also the tonnage carried is less, and the total charge is higher (1, pp. 22-27; 3, pp. 258-259). This conclusion is not unique to the illustrative numbers.

In theory a railroad and a barge line could set and maintain a joint rate that maximized total profit. This would require that each carrier share information on cost and demand estimates. Not surprisingly, carriers are reluctant to pool such information (1, pp. 28-29). At least these two modes have not cooperated much in the past so that joint rate-making has been difficult. Consolidation could be a way to ensure joint rates that are the most efficient for the shipping public (9).

INVESTMENT CONSIDERATIONS

Consider though the implications, particularly that of less intermodal traffic, of higher rates and lower traffic levels in the long term. With lower traffic levels, intermodal capacity eventually is smaller. There is less investment in intermodal capacity and in maintenance of that capacity.

Rodney Eyster observed that prohibitions on intermodal ownership kept railroads from investing in airlines and barges. Early in this century this lack of railroad investment probably retarded growth for both modes (10, pp. 14-15; 11, p. 40). Consider the aftermath of the Panama Canal Act and the Lake Line Applications case [33 ICC 699 (1915)], which set the precedent for the separation of rail-water ownership. Inland carriage was so insignificant that the federal government was compelled to initiate its own barge operations during World War I and established the Inland Waterways Corporation in 1924.

Investment for intermodal facilities might be less than optimal because the benefits from facility improvement are generally shared among several parties: rail, barge, terminal company, and facility

TABLE 2 Numerical Example

Case	Rate (\$/ton)		Freight Carried (millions of tons)	Revenue (\$ millions)		Cost (\$ millions)		Profit (\$ millions)	
	X	Y		X	Y	X	Y	X	Y
1	10	10	10	100	100	70	70	30	30
2	11	11	7	77	77	49	49	28	28
3	11	10	8.5	93.5	85	59.5	59.5	34.0	25.5
4	10	11	8.5	85	93.5	59.5	59.5	25.5	34.0

host (i.e., local or state entity). Thus incentives to make such improvements are diffuse. Single corporate ownership could produce significantly improved or innovative facilities and operations because the incentives are more concentrated.

The CSX-ACBL application operating plan does identify new investment potential at three locations: Louisville, Philadelphia, and probably Decatur, Alabama. The Louisville facility will be improved to handle a larger rail-barge interchange of coal. CSX plans to extend the market of eastern Kentucky coal into the upper Midwest and Texas. A Philadelphia truck and rail location will be expanded because CSX intends to use it for interchanging increased chemical traffic from Texas and Louisville to the Northeast.

COORDINATION AND SCALE ECONOMIES

This merger also holds the potential for increased efficiency due to specific fleet coordination improvements and scale economies. A key potential efficiency gain in the operating plan involves loading phosphates onto ACBL barges on the Tennessee River probably at Decatur, Alabama. Currently, ACBL has to bring 12 empty barges back from the upper Tennessee River so this movement would reduce ACBL's empty backhauls. The Tennessee River terminal would also serve to interchange Canadian potash and grain (12).

The better coordination brought by the merger would allow the use of more unit trains and the saving of car time and barge time in loading and unloading. These cost reductions are estimated at \$1.09 per ton for coal and more than \$1.75 million annually in total (13). Similar reductions can be expected for phosphate and potash traffic.

Other efficiencies are possible from joint purchasing. In particular CSX-ACBL could save as much as \$2 million annually from joint purchase of steel plates. Other joint purchase savings are possible on computer hardware and software through CSX's computer subsidiary (12, pp. 4-6).

From a customer service viewpoint, one-stop shipping can provide significant streamlining--billing, record keeping, marketing research. Monitoring shipments and dealing with loss and damage claims would also be simplified.

EFFICIENCY GAINS CAN INCREASE COMPETITION

Competition will not be harmed; moreover, efficiency gains are likely. And the public policy case for encouraging rail-barge mergers is further strengthened by the prospect that efficiency gains will spur more competition.

Under conditions of unregulated monopoly, efficiency gains generally go to the supplier in the form of increased profits. Under regulated monopolies, efficiency gains are typically shared with both the supplier and the consumers. In an industry that is already competitive, some efficiency gains might go initially to the supplier, but competition would quickly force suppliers to pass these gains on to consumers in the form of lower rates, which would spur further competition.

The low entry barriers and the highly competitive nature of the barge industry seem to preclude any harm to competition from this merger. There is every reason to believe that these same forces would cause efficiency gains--where they result--to produce further competition and add to net economic surplus.

Until the CSX-ACBL case is decided and perhaps for some time thereafter, parties will continue to debate who benefits and how from various gambits and

responses possible in the intermodal transport sector. This debate is clearly constructive in that it forces continued examination and reevaluation of how public policy should shape the outcome of these activities.

In this context, one concern expressed is that a rail-barge company could unduly favor its own barge carrier, excluding other carriers. Such concern, however, appears to be unwarranted. First, the precedent for that behavior pervades the free market. Contracts, which for their duration exclude competitors, exist throughout the economy. An even closer example is shippers on the inland waterways. Cargill is not accused of barge companies when it elects to use its own private carriage instead of some for-hire barge operator.

Consider also that the market encourages even integrated firms to behave efficiently, not to coddle inefficiency. When total costs of using a second unaffiliated carrier are lower than the costs of using the services of a merger partner, the firm has an incentive to select the low-cost carrier. Economically, total profits are not increased by selecting higher cost alternatives.

CONCLUSION

Fears that rail-barge mergers would cause predation appear unfounded. Besides the disproportionate losses a railroad would incur in a predatory pricing campaign, it would be almost impossible to maintain a monopoly on the waterways because of the ease of entry into the barge industry. There are also the potential efficiency gains from more effective coordination and organization of intermodal operations inside a multimodal transportation company. In addition, there is the possibility that any efficiency gains would spur further competition and add to net economic surplus.

In the absence of specific evidence of overriding social disadvantages, rail-barge mergers--like other mergers--should be permitted. There is no credible evidence of such disadvantages. On the contrary there is reason to hope for greater efficiency. Public policy should apply to rail-barge mergers the same standards that are applied in the nontransportation sectors of the economy. And it appears that such standards would permit the CSX-ACBL merger to take place.

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Possible Impacts of International Registration Plan on Trucking Industry and State Economy: A Case Study of Indiana

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ABSTRACT

An evaluation of possible impacts of Indiana's participation in the International Registration Plan (IRP) on resident trucking industry and state economy is presented. The IRP is a multijurisdictional compact to share interstate truck registration fees among the member states and provinces. It is important to consider the total package of user taxes in making a decision about a possible IRP entry, which may change the registration fees for resident carriers. A careful consideration of any additional tax burden on resident carriers is particularly critical for states with a large number of registered trucks such as Indiana. The bottom line for any state is that it must capture fees from out-of-state carriers more closely representative of highway use. The issue is how this can be achieved without jeopardizing the sustenance and growth of local trucking and warehousing industry.

Over the years reciprocity among the states with respect to the use of highways by out-of-state trucks has become a complicated set of arrangements. There has been a proliferation of agreements and requirements on motor carriers for registering their fleet of vehicles. Truckers and shippers point out that the system has become complex and cumbersome. This leads to time delays, increased paperwork and regulation costs, and an imbalance between jurisdiction of road use and jurisdiction of fee payment.

The International Registration Plan (IRP), initiated in 1973 and administered by the American Association of Motor Vehicle Administrators (AAMVA), is an attempt to simplify and unify interstate truck registration. Two earlier multilateral reciprocity

agreements were the Multistate Agreement of 1948 and the Proration Agreement of 1956. Under IRP, carriers pay registration fees through their base jurisdiction to jurisdictions in which they travel according to the percentage of fleet miles traveled and the fee schedule operative in each jurisdiction. As of the end of 1983, 28 states and 1 province, Alberta, had joined IRP.

Mandated by the House Enrolled Act 1006 of the 103rd Indiana General Assembly, a study was undertaken to assess the consequences of Indiana's joining the IRP (1). In addition to a determination of the truck registration revenue impact for Indiana, this study also examined the possible effect of the IRP on Indiana trucking industry. Furthermore, an